USGS science for a changing world

Earthquake Shaking — Red Alert

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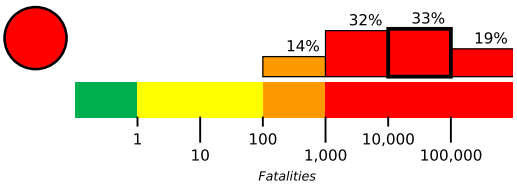
M 7.3, 29km S of Halabjah, Iraq

Origin Time: 2017-11-12 18:18:17 UTC (Sun 21:48:17 local)
Location: 34.9109° N 45.9592° E Depth: 19.0 km

PAGER Version 9

Created: 7 weeks, 5 days after earthquake

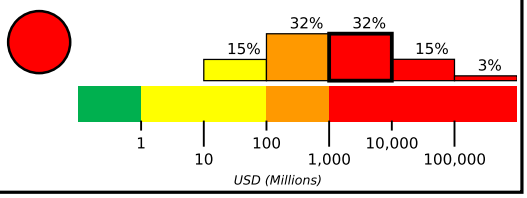
Estimated Fatalities



Red alert for shaking-related fatalities and economic losses. High casualties and extensive damage are probable and the disaster is likely widespread. Past red alerts have required a national or international response.

Estimated economic losses are less than 1% of GDP of Iran.

Estimated Economic Losses

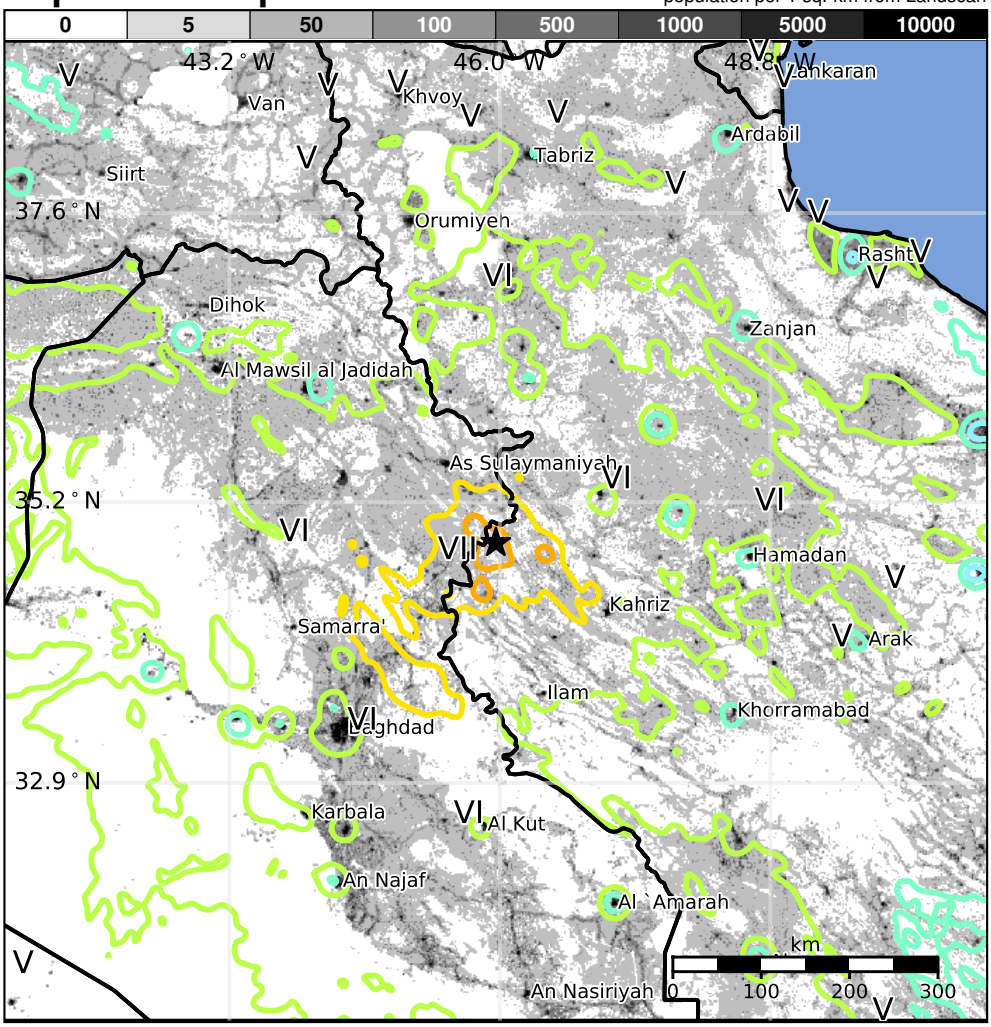


Estimated Population Exposed to Earthquake Shaking

ESTIMATED POPULATION EXPOSURE (k=x1000)		–*	2,884k*	7,133k*	32,775k	26,236k	1,510k	160k	0	0
ESTIMATED MODIFIED MERCALLI INTENSITY		I	II-III	IV	V	VI	VII	VIII	IX	X+
PERCEIVED SHAKING		Not felt	Weak	Light	Moderate	Strong	Very Strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	Resistant Structures	None	None	None	V. Light	Light	Moderate	Mod./Heavy	Heavy	V. Heavy
	Vulnerable Structures	None	None	None	Light	Moderate	Mod./Heavy	Heavy	V. Heavy	V. Heavy

*Estimated exposure only includes population within the map area.

Population Exposure



Structures

Overall, the population in this region resides in structures that are highly vulnerable to earthquake shaking, though some resistant structures exist. The predominant vulnerable building types are adobe block and low-rise nonductile concrete frame with infill construction.

Historical Earthquakes

Date (UTC)	Dist. (km)	Mag.	Max MMI(#)	Shaking Deaths
1962-09-01	357	6.9	IX(4k)	12k
1997-02-28	399	6.1	VIII(3k)	1k
1990-06-20	374	7.4	IX(83k)	45k

Recent earthquakes in this area have caused secondary hazards such as landslides that might have contributed to losses.

Selected City Exposure

from GeoNames.org

MMI	City	Population
VIII	Sarpol-e Zahab	52k
VIII	Javanrud	<1k
VIII	Javanrud	39k
VIII	Derbendixan	<1k
VIII	Tazehabad	<1k
VII	Halabjah	57k
V	Erbil	933k
V	**Tabriz**	**1,425k**
V	**Baghdad**	**7,216k**
V	Mosul	1,740k
III	Qom	900k

bold cities appear on map. (k=x1000)

PAGER content is automatically generated, and only considers losses due to structural damage. Limitations of input data, shaking estimates, and loss models may add uncertainty.

https://earthquake.usgs.gov/earthquakes/eventpage/us2000bmcg#pager

Event ID: us2000bmcg